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SKIN DISEASES*

INTRODUCTION

F. BLAKEMORE (Bristol): This symposium will afford an opportunity to collect together a good deal of scattered information, and cause us to realise more fully that the skin is not just the barrier between the body and the exterior, but a living tissue which contributes to and reflects the state of vital physiological functions.

There are many diseases affecting the skin and although those carried by ectoparasites will not be considered here they are responsible for very great economic losses. There will be an opportunity to discuss the infective conditions in which the skin is directly affected and those in which it shows manifestations of a more generalised infection. These diseases are exceedingly common and it will only be possible to deal with certain aspects. In addition, we must include the many eczematous disorders which commonly affect small animals and also diseases of uncertain aetiology. But before passing to the abnormalities which the veterinarian encounters some consideration should be given to the skin as it affects normal production.

Conformation of the skin is known to be directly related to the problem of blowfly myiasis in sheep, the presence of loose folds of skin in the region of the buttocks providing an optimum condition for the attraction of the fly. The removal of this skin by Mules' operation has been of value in the control of "strike." Skin characteristics must also be considered in relation to climate, since breeds of animals react differently to environmental stimuli such as radiation, temperature and humidity and this is largely due to variations in the skin and coat. Animals with plenty of skin pigment are better able to withstand the effect of excessive sunlight. In America this has been recognised in pigs and new breeds produced for crossing have been developed with some hide colour. In cattle a white, yellow or red coat with a dark hide is the ideal combination to render an animal resistant to intense solar radiation. In contrast, lack of pigment produces an increased susceptibility to photosensitisation (Bonsma, 1948). Under certain conditions, lack of colour is also related to cancer of the eyelids. For instance, Guilbert *et al.* (1948), working in South America, observed that the lower eyelids of 10 per cent. of the cattle over four years old in one area were affected with neoplasms and in about half they became malignant. The disease was restricted to cattle with white hair around the eyes and lacking in skin pigment. There is also the puzzling association between colour and the melanosarcoma which is especially common in old grey horses.

The nutritional contribution made by the skin in the form of vitamin D synthesis has long been appreciated and it must be considered, both in relation to housing conditions and to the country concerned, since beyond certain latitudes solar radiation is insufficient for normal synthesis. For instance, Tisdall & Brown (1929) produced evidence that human rickets is uncommon, or exists chiefly in a mild form, in those places where the minimum seasonal altitude of the sun is below 35 degrees for some months of the year. Lack of skin synthesis of vitamin D, therefore, may be reflected in an increased incidence of bone disease in northern countries.

The relationship of nutrition to disease of the skin is a subject of considerable importance. It is well known that the general standard of feeding contributes to the health of the skin. Moreover, any sudden disturbance in nutrition may have a serious effect on it. I have, for instance, observed almost complete loss of fleece in a flock of sheep folded on wheat stubble containing a large amount of grain which had become spoiled by unfavourable weather.

The absence of an essential food factor may cause disease. Vitamin A has been especially incriminated and deficient animals show a predisposition to ringworm. In America a disease of cattle characterised by keratinisation of the skin has been observed following the feeding of processed concentrates. It has been shown that the disease is associated with a rapid fall in the plasma level of vitamin A which precedes the changes in the skin and it has been suggested that the cake contains a substance with an anti-vitamin effect (Hansel *et al.*, 1951).

In recent years there has been much interest in food factors which cause dermatitis by increasing sensitivity to light. The early work on photosensitisation carried out in South Africa showed that dermatitis could be traced to the ingestion of plants containing substances producing this effect and many diseases can now be explained in this way. Species of *Hypericum* have been incriminated but photosensitivity may occur from the feeding of certain forage plants, and Rimington & Quin (1934) showed that phylloerythrin, a product of the degradation of chlorophyll, produces this effect. Facial eczema of sheep in New Zealand has been shown to be associated with liver damage, followed by icterus and fibrosis. Phylloerythrin is the sensitising agent (Clare, 1944) but there is another unknown toxic herbage product which affects the liver and leads to an accumulation of this pigment in the general circulation. Facial eczema occurs on pastures consisting predominantly of perennial rye grass with some white clover, and occurs under certain climatic conditions, being common when drought is followed by warm humid weather.

Photosensitisation has been recognised in Scotland, where it is associated with pastures rich in leguminous plants and with folding on rape. I have observed it repeatedly in England in sheep maintained on kale. While recognised photosensitisation is not common in this country we should give more consideration to herbage and food factors in relation to dermatitis. Dermatitis of horses and particularly of ponies which occurs during the early summer might profitably be studied on this basis.

When the horse was an important transport animal any discussion on the skin would have been directed mainly to such infections as farcy and epizootic lymphangitis, dis-

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eases which fortunately no longer exist in this country.

Our knowledge of the external flora of the skin and the manner in which it is regulated is incomplete. We know, however, that pathogenic organisms may be present. The presence of *Streptococcus agalactiae* on the skin of the udder may provide a reservoir for further infection in herds where this organism is a cause of mastitis. It is assumed that *Corynebacterium pyogenes* and Group C *streptococci* are carried on the skin or mucous membranes of cattle and horses respectively, and these organisms constitute one of the main infection hazards in wounds, both surgical and accidental. The barrier defence of the intact skin is limited to the epidermis and we are apt to overlook the avenue provided by the dermis with its plentiful supply of capillaries and lymphatics for the entry of micro-organisms and toxic chemicals into the general circulation. Certain infections can be more easily induced when the organism is introduced by scarification, *e.g.*, *Erysipelothrix rhusiopathiae* and *Leptospira icterohaemorrhagiae*. The factors involved in the infective process are worthy of study, for under certain conditions the skin affords an opportunity for the establishment of a primary focus of infection from which the blood stream is subsequently invaded.

Occupational dermatitis, which is common in man, is not of great significance in animals, although continual exposure to mud and wet has long been recognised as an important factor in the causation of skin diseases of the legs, especially in horses. Nor are we much troubled in animals with diseases which can be attributed to nervous disorders, although the pruritus of scrapie is an exception. Nevertheless, eczema is common, particularly in small animals, and it is often difficult to find its cause.

Disease of the skin may be the result of internal lesions disturbing metabolism. For instance, the birth of hairless young is a feature of iodine deficiency, and in facial eczema, as mentioned earlier, the skin disturbance is probably secondary to specific disease of the liver. I have also observed eczema of the fetlocks to be a feature of pancreatic disease in the horse. A closer study of the internal organs in dermatitis may reveal a more satisfactory basis for classification and explain their aetiology more logically than some of the views that are advanced at present.

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MYCOLOGICAL ORIGIN

G. C. Ainsworth (Exeter): It seems appropriate that the first of the special contributions to this symposium should deal with skin disease of mycological origin, since fungi were the first pathogens of animals to be recognised. Just over a century ago ringworm in man was shown to be of mycotic origin and about the same time ringworm of the mouse and other animals was described. Pathogenic bacteria and viruses, which were then unknown, have since come into prominence and though much progress has been made in the study of fungus diseases there is still a tendency to equate veterinary and medical mycology with "ringworm." Quite a number of pathogenic fungi regularly or on occasion induce cutaneous or subcutaneous manifestations but I shall confine myself to a consideration of ringworm caused by the so-called dermatophytes, fungi whose pathogenic activities are restricted to keratinised tissue.

It is unfortunate that there have been few competent veterinary mycologists and equally unfortunate that few professional mycologists have paid serious attention to fungi pathogenic for animals. This has resulted in a position which has I think been quite fairly summarised by M. A. Gordon, who recently wrote: "the greatest need in veterinary mycology is for good *mycology*, that is a knowledge of the aetiologic agents and their diagnostic characters in tissues and in culture." I feel I must, therefore, first make a short excursion into mycology.

Among veterinary workers the mycology of ringworm is still dominated by Sabouraud, a medical man who distinguished on clinical characters four genera of dermatophytes (*Microsporum*, *Trichophyton*, *Achorion*, and *Epidermophyton*). Mycologists feel that it is usually best to classify fungi generically by the morphological characters of the fungi themselves and in 1934 C. W. Emmons showed that three of Sabouraud's genera could be defined in mycological terms and that the fourth, *Achorion*, was unnecessary. The most important of the differential characters used by Emmons was the structure of the macroconidia, the so-called spindles or fuseaux which develop in culture but not in the parasitic state. In *Microsporum* the macroconidia are more or less spindle-shaped, thick-walled, multiseptate, and often warted; in *Trichophyton* they are cigar-shaped, thin-walled, multiseptate and smooth, and in the third and monotypic genus *Epidermophyton* (which occurs only in man) the macroconidia are smaller, pear-shaped, thick-walled, have few septa, and are smooth. Of other characters which also serve to differentiate the first two genera the arrangement of the arthrospores in infected hairs is useful. In *Microsporum* they form an irregular mosaic over the surface of the hair while in *Trichophyton* the arthrospores tend to be arranged in linear series on or in the hair. A most useful clinical differentiation of these two genera is by the use of Wood's light (ultra-violet light filtered through soda glass containing nickel oxide) when *Microsporum*-infected but not *Trichophyton*-infected hairs show a brilliant greenish fluorescence.

In this country to-day, as probably throughout the world, the most commonly occurring dermatomycosis of animals is cat and dog ringworm caused by *Microsporum canis*. For two reasons most records of *M. canis* in this country are, however, from man. Firstly because the Public Health Laboratory Service maintains a Mycological Reference Laboratory which offers a mycological diagnostic service, and secondly because of the need to distinguish *M. canis* infections in children from the more intractable but clinically very similar infections due to *M. audouini*, a fungus of more restricted geographical distribution. Cattle ringworm caused by *Trichophyton discoides* (or *T. verrucosum* of which *T. discoides* may be considered a variety) is also widespread. Like *M. canis*, *T. discoides* is usually isolated in culture and identified from infections in man, because such material is more often examined culturally than material from cattle. Horses, other farm animals, mice and poultry also suffer from ringworm caused by a number of different dermatophytes. *T. mentagrophytes*, one of the first "animal" species of *Trichophyton* to be described, is not uncommon in man, dogs, mice and other animals,

but the Agricultural Research Council's current survey of fungi associated with disease in farm animals suggests it is rare in cattle. Similarly, fowl favus (*T. gallinae*) is now much less common in this country than it appears to have been 40 years ago.

Although the dermatomycoses and the dermatophytes have been much studied and are the subject of a vast and confused literature, there is very little reliable information on the epidemiology of even the commoner types of ringworm. It appears that young animals are in general more susceptible to infection than older animals but whether there is really any fundamental difference between calves and adult cattle in respect of cattle ringworm such as that shown by children and adults to *M. audouini* infection has never been elucidated. It is usual to find that ringworm in calves clears up spontaneously when the animals are turned out, but whether this is related to the age of the animals or to constant reinfection when confined in the calf shed needs to be investigated. The source of the infection is also obscure. Ringworm infection is sometimes clearly associated with certain buildings in which successive batches of calves develop the disease but the way in which the infection is carried over is not clear. Although dermatophytes only parasitise keratinised tissues they are usually not exacting in their nutritional requirements and will grow saprophytically on many different media. In 1937 Muende and Webb demonstrated *T. mentagrophytes* growing on fragments of dung in a calf shed in which there had been an outbreak of ringworm but whether such a state of affairs is usual or exceptional is unknown. During the last year or two there have been several records from the U.S.A. and elsewhere of dermatophytes or dermatophyte-like fungi being isolated from soil and it is possible that it is from the soil that dermatophytes and certain other fungi pathogenic for animals originate.

Attention has recently been focused on the relation of nutrition to the expression of dermatomycoses. According to M. A. Donk, the incidence of ringworm during the Second World War in the prison camps in Java was at first high, following the break from a high nutritional level to one of bare subsistence. With increasing length of confinement the incidence fell continually and reached zero after three years' internment, when most prisoners had lost up to half their original weight. On liberation and the return to an adequate diet fungus infection flared up in nearly all who had been confined, only to disappear slowly as the individuals gained in weight. This observation suggests lines for experiment but the only experimental work known to me is that on cat ringworm by Floriano de Almeida and his colleagues. These workers claim that when cats infected by *M. canis* are placed on a deficient diet they develop cutaneous lesions which are aggravated by the administration of sulphaguanidine, due to the suppression of folic acid production by intestinal bacteria. The lesions resolved without local treatment and the animals returned to " normal " health on being given a rich diet, but ringworm lesions recurred following a reversion to the deficient diet. While on the deficient diet the cats lost their sexual activity and attention was drawn to the parallel between the symptoms in undernourished adult animals and in young sexually immature animals. *M. canis* infection in cats is often very difficult to detect without very thorough examination under Wood's light and the unthrifty appearance of a cat showing severe clinical ringworm may not be so much the result but the cause of the dermatophyte infection.

BACTERIAL AND VIRUS ORIGIN

R. Lovell (London): Skin lesions of animals are important because an unsightly animal is aesthetically undesirable and economically unsound. Although skin lesions may be associated with bacteria and viruses, the condition of the skin plays an important rôle in the aetiology of infections. The skin is more than a covering; it is an essential organ with specific functions and in different animals it varies in its nutrition, blood supply, nervous mechanism and mineral content. It follows therefore that skin manifestations of a general disease may occur in one animal and not in another; on the other hand, some specific diseases are characterised by the presence of skin lesions. It is convenient to consider the bacterial and virus infections of the skin under three headings:—

(a) Specific skin infections.

(b) Skin infections as a manifestation of a general disease.

(c) Localised and incidental skin infections.

(a) *Specific Skin Infections.*—These are characterised by lesions of the skin in all the animals which suffer from the particular disease. In general, they are specific diseases, well documented and well recognised. They include the animal poxes with which one may group fowl pox and contagious pustular dermatitis of sheep; foot-and-mouth disease, vesicular stomatitis and vesicular exanthema; some of the warts and infectious papillomata; rabbit syphilis, a superficial infection with *Treponema cuniculi;* labial necrosis of rabbits and a form of skin necrosis of sheep associated with *Fusiformis necrophorus;* rat leprosy; and possibly the so-called skin tuberculosis of cattle.

The skin tuberculosis of cattle is puzzling; the lesions are commonly on the limbs and may be firm and hard or soft and fluctuating. The size of the individual lesions varies from that of a pea to several inches in diameter and many may form a chain. Acid-fast bacilli may be demonstrated, although attempts to cultivate them have yielded no success and no transmission has been obtained. The skin changes resemble tuberculous foci when examined histologically and there is no interference with the health of the animal although there is some interference with sensitivity to tuberculin. One is tempted to compare this condition with rat leprosy and it is suggested that research into the condition might be concentrated, not on the acid-fast bacteria, but on the host—the type and age of affected animals, breed, texture of skin, general state of health and especially the condition and biochemical aspects of the skin. In other words, a study should be made of the medium or soil in which the acid-fast bacilli are found. Many of the other conditions mentioned are so well known as to need no explanatory comment.

(b) *Skin Infections as a Manifestation of a General Disease.*—There are many infectious diseases in which only a proportion of patients show skin changes. Glanders, swine erysipelas, anthrax and tularaemia are examples.

There are other diseases, such as scrapie and Aujeszky's disease, in which there is skin irritation. They are regarded as diseases affecting nervous tissue, whereas the observed symptom is associated with the skin; this may be due to the excretion of an irritating product or the stimulation of the sensory nerves supplying the skin.

Many other infections occasionally cause some signs of skin irritation; a food-poisoning rash is well recognised in man, and pigs with swine fever may show skin lesions. There may be some connection, for salmonella are

frequently the cause of food-poisoning in man and they may be secondary invaders in swine fever.

Skin tuberculosis of the cat falls in this group; it is different from that in cattle and is dangerous because virulent tubercle bacilli of the bovine type are implicated, and they may be spread to man or other animals.

(c) *Localised and Incidental Skin Infections.*—These are conditions in which an infection may have been implanted in a favourable nidus or a series of circumstances may occur, thereby making an endogenous infection possible.

Virulent *C. diphtheriae* have been recovered from lesions on the limbs of horses and elephants, and superficial lesions on the teats of cows have yielded a similar organism. One or two cases of the latter are recorded and one is known to me personally. These infections are probably of human origin and skin lesions with a similar aetiology occur in man.

Staphylococci are frequently involved in skin and subcutaneous lesions; if a lesion develops between the toes of a dog it is called a toe-cyst and if tumour-like processes occur it is called botryomycosis. The aetiology is similar and irritation is concerned in both; the possibility of an endogenous infection must be considered and staphylococci are found in the upper respiratory tract of normal animals.

C. pyogenes is a common inhabitant of cattle and sheep, and skin abscesses following an injury are frequently ascribed to *C. pyogenes* because of its isolation from suppurative conditions in these animals. On the other hand, *C. ovis* is probably introduced from outside in ulcerative lymphangitis of horses and cattle. Irritation and injury are concerned in both and the development of the disease in horses in Flanders in 1914-18 was associated with the long periods during which horses were compelled to stand in mud; grazing in thorny bush country probably contributes to the development of the disease in cattle in Kenya.

These few examples serve to teach some lessons. As with all infections, an accurate diagnosis is essential but the demonstration and identification of a parasitic agent is not always sufficient. It may be adequate in the well-documented specific skin diseases but it is not so in localised and incidental infections because other factors have played a part. Virus infections aid the proliferation of bacteria; this is recognised in respiratory and intestinal disturbances, and the skin is equally important as an organ of the body. The inability to recover an infective agent from a skin lesion does not rule out a bacterial cause nor does it necessarily suggest a virus origin. Scarlet fever in man is a bacterial disease and the erythrogenic toxin displays itself in some of the infected but not in all and this depends upon the immunological status of the individual. Other infections may well be endogenous and the important cause may be irritation, trauma, or even another living agent.

Treatment and control of skin infections must follow rational lines and the determination of all the causes is essential. The possibility of an endogenous infection must be borne in mind and the host must be regarded as no less important than an infective agent in a study of the aetiology of a skin disease.

TRANSMISSIBLE BETWEEN MAN AND ANIMAL

R. E. Rewell (Liverpool): There are few conditions which manifest themselves in the skin of man and also in that of other animals and most of them are of fungal origin and have already been dealt with. There are, however, a number which cause lesions in the skin of one species and in different sites when transmitted to another species.

(a) *Conditions Transmissible from Skin to Skin.*—As Dr. Ainsworth has pointed out, the same fungus, found at different times or in different hosts, has been given a variety of names. There are few medical or veterinary mycologists, and those who treat conditions caused by fungi are inclined to concentrate on the clinical manifestations of the disease and all too seldom take steps to identify the causal organism. This has given rise to a great deal of confusion. As Dr. Ainsworth has emphasised, the distinction between human ringworm due to *M. audouini* and *M. canis* is of importance in public health since prognosis is very different, for *M. canis* infection of the hair of children causes a mild disease which is easily cured, in contrast to *M. audouini* which is more serious. Ringworm of the skin occurs in sites other than the head, for example the limbs, but ringworm of animal origin is more rare in those sites.

Of other infections which cause skin manifestations in more than one species, glanders and foot-and-mouth disease can be cited, but in man are of no importance in this country.

(b) *Conditions Causing General Manifestations in Animals and Skin Disease when transmitted to Man.*—These diseases are caused in man by direct contact with infected material. Anthrax is one of the most important, although the disease is rare except in those who handle imported hides and may develop the so-called " malignant pustule " on their hands, forearms or side of the head and neck where the loads of hides rub and cause abrasions. The infection does not, however, remain localised for long, but soon spreads and gives rise to an extensive, spreading lymphangitis and then to septicaemia. It is important to realise that the disease is seen in certain localised areas where much trade in hides is carried on and the cases are thus seen in a limited number of hospitals. It is usually stated that the malignant pustule is a characteristic lesion, a central black slough being surrounded by small blisters containing clear fluid. Analysis of a number of cases shows, however, that this is far from a universal picture. The lesion of cutaneous anthrax in man may resemble any type of small infected abrasion. Although many cases do show the classical picture, those that do not are especially important because they are more difficult to diagnose.

The other common general disease of animals causing skin lesions in man is tuberculosis, but this again is now relatively rare. The classical ulcer of tuberculosis with its irregular margin and undermined edges is produced eventually, but at first a slightly raised mass appears, rather indurated, and forming the true " verruca necrogenica." This is now less often seen in *post-mortem* room technicians and butchers since the former usually wear gloves and the latter handle few infected carcases. The lesion is due to direct implantation. One form of generalised response to tuberculous infection which may appear in the skin of man is known as " tuberculide." Its manifestations are well known to the clinician and the lesions arise during the development of hypersensitivity to an internal tuberculous infection which may be of animal origin.

Another skin disease in man, erythema nodosum, arises during the early stages of the development of hypersensitivity to several internal infections of which tuberculosis of animal origin is one. Pulmonary tuberculosis can be contracted from warts on the foot or head of parrots caused by the human type of organism.

Swine erysipelas can be included under this heading also.

(c) *Skin Conditions of Man Transmissible to Animals as General Diseases.*—Several of the common exanthe-

matous fevers, for example measles and rubella, can be transmitted experimentally to Callithrix monkeys, although the more common laboratory species are not susceptible. Chimpanzees are very susceptible to measles. Under ordinary conditions of captivity Primates do not contract these diseases, although they easily develop the common cold.

Although animal parasites are not included in this symposium, mention should be made briefly of *Sarcoptes scabei* because human infestation with cat scabies is well known. The lesions usually occur on the neck and shoulders and respond to treatment. The human scabies mite and those affecting some of the higher apes appear to be identical and I have seen transmission between the gorilla, orang utang and man, although the chimpanzee exposed to the same conditions remained unaffected. Many other examples are known in which transmissibility between species is capricious and related to no known feature of the anatomy or physiology of the animals concerned. Thus, many lice will seek to invade foreign hosts, but in most cases only a very brief period of residence occurs and parasites soon die out, or leave the new host after one or two attempts at feeding.

(d) *Skin Diseases in Animals causing General Disease in Man.*—There are very few diseases in this group and the only ones in which human pathologists are interested are the group of fungi which may be found in lesions of the lung. These are rare in man as a primary infection and the origin of many of them may be the skin or hair of animals, but proof of transmission is difficult to obtain.

Under this heading can also be considered the non-specific allergic manifestations of man, *i.e.*, asthma, hay fever, angioneurotic oedema, erythema and eczema. A proportion of these are the result of sensitivity to animal products. The long-haired domestic cat is a common cause, but horse-hair is well known also and I have seen a similar response to camels and other captive wild animals. The nature of the reaction is non-specific and is probably initiated by the proteins of the hair or skin, although products of such invading organisms as fungi are difficult to exclude.

HORMONAL AND UNKNOWN ORIGIN

Alopecia in the Dog Associated with Neoplasia of the Testes*

S. Jennings (Glasgow): In 1936 Greulich & Burford first described changes in the prostate and mammary glands of male dogs which had neoplastic testicles. McCunn (1939) described a case in which orchidectomy in a dog with alopecia and a neoplastic testicle brought about a satisfactory cure. Innes (1942), in a paper on canine testicular tumours, divided them into three types; seminoma, tubular adenoma (Sertoli cell tumour) and interstitial cell tumours. He cited 15 cases of Sertoli cell tumour and stated that alopecia was present in five dogs and two of them were attractive to other male dogs. Since that time a number of references have appeared in the literature to Sertoli cell tumours removed from dogs which showed prostatic hypoplasia, development of mammary tissue, alopecia, enlarged prepuce and attractiveness to other male dogs, or some of these features.

In five cases now being described the dogs had a Sertoli cell tumour and all showed some degree of alopecia. In the severe cases the skin was thickened, greasy and pigmented. The degree of alopecia was not related to the size of the tumour. In one case, a curly-coated retriever, the testicle was so large that it touched the ground yet alopecia was not extensive, whereas in a pomeranian the testicle was not large but the animal was almost hairless and carried a grossly enlarged prepuce. Orchidectomy produced a complete return of the coat, and hair growth commenced in all cases within two weeks of operation.

It has been suggested that the alopecia and other changes are due to synthesis of large amounts of oestrogens within the Sertoli cell tumour. An attempt was made to demonstrate oestrogens in a neoplastic testicle taken from a dog with alopecia but which was not attractive to other males. An ethanol extract was made, the solvent evaporated to dryness and the residue dissolved in arachis oil. This was injected into immature mice according to the method of Evans, Varney & Koch (1941) in the mouse uterine weight method of oestrogen assay. There was no change in the uterine weights in the group of mice used as compared with those in the controls. The neoplasm was a slight variant of the usual Sertoli cell tumour but in any case the negative test for oestrogens is in agreement with the findings of Huggins & Moulder (1945), who were only able to demonstrate oestrogens from testes which contained feminising Sertoli cell tumours and not in Sertoli tumours taken from dogs which were not attractive to other males. One further case is of interest in which a rough-haired terrier had a marked alopecia identical in appearance to those just described but had testicles of normal size. Orchidectomy was followed by hair growth and in two months the animal had a perfect coat. Histologically the testicle was normal in every way and thus the case adds further evidence to show that oestrogens, if indeed oestrogens are responsible for the alopecia, are not always produced within the testicle.

I am grateful to Mr. K. W. Head, B.Sc., M.R.C.V.S., and Mr. W. F. H. Jarrett, M.R.C.V.S., of Glasgow, for making histological examinations of the tumours.

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ALLERGIC AND ANAPHYLACTIC ORIGIN

J. Carmichael (Ongar): At a meeting of the Section of Pathology, Royal Society of Medicine, in November, 1952, Dr. W. N. Goldsmith, a dermatologist engaged in experimental work, outlined some of the "Problems of epidermal sensitisation." The manifestations of epidermal sensitisation are flare, oedema or erythema. Some of these symptoms are, of course, difficult to distinguish in the pigmented skin of animals and there is no standard cutaneous response to stimulating antigens. Different antigens produce their response in different superficial layers of the skin, which accounts for the clinical appearance of lesions, whether scaly, eczematoid or maculo-papular.

Whether or not any lesion is in fact due to allergic response is difficult to determine because sensitisation tests are not necessarily specific. Dr. Goldsmith believed the most satisfactory way of making a decision was to observe any resulting pigmentation after the primary reactions had subsided; this was particularly true of erythematous reactions which might provide a basis for distinguishing

* The contributor also described a form of vesicular dermatitis in dogs, which will be dealt with in another publication.

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between erythema due to irritants as opposed to a true antigen-antibody response. He believed that it was essential to determine not only the extent of any response to an exciting substance, but the exact nature, because these findings taken together might indicate the precise layer of the skin principally, if not solely, involved. The need for distinguishing between the different layers of the skin concerned with epidermal sensitisations was of more than academic importance, because it provided a means by which the mechanism of the reaction might be studied. Sensitivity is supposed to be transmitted by leukocytes, probably those of the lymphocyte series. In the deep layers of the skin it is easy to understand how these circulating cells could exert their effects, but when one considers the reactions in superficial layers which were only bathed in body fluids, difficulties arise in the cellular transmission theory. No satisfactory explanation of the process is yet forthcoming unless the irritant were solely introduced from the outside and permeated into vascular layers during subsequent days.

This work is mentioned in order to illustrate the complexity of the subject and to show how difficult it is to consider skin conditions apart from the general subject of allergy and anaphylaxis.

Conditions in Animals.—Although it seems likely that certain types of skin abnormalities are a manifestation of allergy it was not until comparatively recently that many of these dermatoses had any rational aetiological background. This especially applied to the so-called eczemas and many of the obscure skin conditions met with in animals. With the introduction of the antihistaminic group of drugs more interest was focused on a number of skin conditions of unknown aetiology and the good results obtained from antihistaminic treatment widened our knowledge of the allergic state in animals, although it must not be assumed that if a condition clears up with antihistaminic treatment the cause is necessarily allergic.

In allergy and anaphylaxis, an animal must be sensitised and then receive a subsequent shock dose of the antigenic substance, resulting in a release of histamine which is responsible for a variety of symptoms, some of which are referred to the skin. Urticaria is met with in all animals and usually clears up, helped by a purgative, but antihistaminic treatment is indicated if it persists.

One of the most frequent skin diseases which appears to have an allergic background is "moist eczema" in dogs. The condition is an acute dermatitis characterised by a pronounced effusion of plasma over the site of the lesion which mats the hair and often masks the true inflammatory area. When the hair is clipped, the lesion is seen to consist of a red, highly inflamed, usually irregular area with the surface moistened by exuded plasma. The onset is usually sudden and although the dermatitis may occur anywhere on the body, the external auditory meatus, the dorsal part of the thorax and the small of the back are in my experience particularly common sites. Histamine is known to cause increased permeability of the capillaries which would account for the excessive plasma exudate. The exciting cause in these cases is difficult to determine but there is reason to suppose that some dietetic factor is involved, as a complete change of diet seems to help in the resolution of the condition. Bacterial infections, internal parasites, chemicals, serum or vaccines presumably might all have a possible aetiological significance.

As regards treatment, antihistaminics in many cases give good results, especially when associated with a dietetic adjustment. Antihistamine creams applied locally give relief solely on account of their analgesic properties, as there is said to be no local antihistamine effect. Calamine and other astringent and mild antiseptic applications also help.

Allergic skin reactions in the form of swollen lips and face, with or without plasma exudation, may follow the injection of certain drugs such as the amidines or may be due to some specific food factor in sensitised animals. These usually clear up spontaneously or with simple treatment.

It is possible that external parasites such as fleas, lice, ticks, etc., may produce an allergic type of dermatitis, due possibly to an individual sensitivity to the saliva of the parasite or to bacterial infection following a bite and subsequent scratching by the host.

The condition known as "Summer Itch" in horses may be allergic in character. There is acute local irritation with resultant rubbing and severe skin inflammation. Local application of antihistaminic cream allays the irritation and in the few cases which I have seen the intramuscular injection of Phenergan appears to stop the syndrome.

Purpura is often considered as of allergic origin and recent work has shown that purpura due to "Sedormid"* is a manifestation of one type of drug hypersensitivity. It is characterised by the rapid development of thrombocytopenia and increased capillary fragility whenever the drug is taken by a sensitised individual. These changes result in extensive haemorrhages throughout the body. Experimental work shows that "Sedormid" combines with platelets to form an antigen which has only very slight powers of stimulating antibody formation and that only those patients who manufacture this antibody develop purpura in response to the drug. When taken by a sensitised individual, "Sedormid" combines with the platelets, thus rendering them antigenic, and so initiates an antigen-antibody reaction which results in platelet lysis and thrombocytopenia.

Finally, I would repeat that allergic and anaphylactic origins of skin disease are easy enough to assume but much more difficult to prove aetiologically. Apart from response to antihistaminic treatment, I do not see how this can be achieved.

NEOPLASTIC DISEASES

K. W. Head (Edinburgh): The subject is discussed on the basis of the findings of the routine diagnostic service of the Department of Veterinary Pathology of the Royal (Dick) School of Veterinary Studies from August 1st, 1940, to July 31st, 1952. This material was obtained from *post-mortem* and biopsy examinations carried out on specimens submitted by other departments in the School, by the Veterinary Officer at the city abattoir and by veterinary surgeons in practice. A total of 895 neoplasms of the skin or subcutaneous tissues was examined.

Horse (52)

Fibropapilloma (30).—The most common skin tumour of horses, found at all ages, mainly on the limbs and prepuce. The tumours may be composed of fibrous tissue with overlying keratinised hyperplastic epithelium and exaggerated rete pegs, or may be completely encapsulated subcutaneous masses of fibrous tissue (prepuce), both types being found in the one animal. Of 30 tumours, 24 were

* Allyl-isoprophyl-acetyl-urea-non barbiturate hypnotic—Roche.

solitary and six multiple; seven of these were recurrences, but no metastases were found.

Epithelial Tumours of Eyelids (12).—Found in the older age group, and with no special sex incidence. These are primarily papillary squamous cell carcinomas but frequently show marked anaplasia with little keratinisation. They show marked local invasion; three metastasised to the local lymph nodes and one showed widespread local invasion of the skull following recurrence after evisceration of the orbit (Burgess, 1949).

Epithelial Tumours of the Skin (2).—Two cases of typical squamous cell carcinomas, one on the hock, one on the prepuce. Neither metastasised.

Epithelial Tumours of the Penis (1).—One multiple epidermoid carcinoma in a 13-year-old gelding with no metastasis in the local lymph nodes.

Tumours of Lymphoid Series Involving Subcutaneous Tissue (4).—Of four generalised lymphoid tumours, one showed subcutaneous lesions also.

There were also three multiple small subcutaneous tumours composed of reticulo-endothelial cells resembling granulomata. One showed a high proportion of eosinophils but none showed causal parasites.

Melanotic Tumours of Skin and Subcutis (3).—Only three specimens were examined. One showed generalised blood-borne metastasis.

Ox (96)

Fibropapilloma (44).—The most common skin tumour in cattle found mainly in the younger age groups. Those on the skin (22) show all variations from typical papillomatous growth to those which consist mainly of fibrous tissue with hyperplastic epithelium and exaggerated rete pegs. Those on the penis and vagina show the latter structure only. Fibropapillomata of the skin, the commonest sites being the neck and teats, are more common in the female (16) than the male (6), probably because more females exist. Fibropapillomata of the penis (16) occur more often than in the vulva (6); four tumours of the penis and one of the vagina were recurrences, but no metastases were found.

Epithelial Tumours of Eyelids (16).—Found in the older age group. All were in females, probably because more females reach old age. The histological picture is similar to that observed in the horse. All specimens were removed surgically and showed local invasiveness. Three showed recurrence after removal.

Fibroma (1).—One subcutaneous neoplasm of oedematous fibrous tissue was observed in the tail of a seven-year-old cow. The age of the animal and structure of this tumour caused its inclusion in this group rather than fibropapilloma.

Fibrosarcoma (1).—One case of subcutaneous fibrosarcoma occurred in the neck of a six-year-old cow and recurred after removal.

Lipoma (1).—One case of a subcutaneous encapsulated lipomatoid mass, *i.e.*, a mass of adult fat cells, was encountered in an adult Friesian cow.

Cavernous and Plexiform Angiomatoid Malformations (6).—Five of six cases were in calves under 10 days old. There does not appear to be a breed or sex predilection. In three cases they were multiple but no spread or metastasis was observed. They are probably malformations.

Tumours of Lymphoid Series Involving Skin (2).—Of 17 generalised lymphosarcoma, only two showed subcutaneous involvement, both cases being in adult cows.

Mast Cell Tumours Involving Subcutaneous Tissue (2).—One solitary tumour in the skin of a five-year-old cow; a second widely distributed in an adult Shorthorn cow.

Subcutaneous Melanomata (23).—Found in young animals and usually noted in calfhood. Most frequent in dark-skinned animals; 10 in Aberdeen Angus and their crosses. No site or sex predilection seen. While not distinctly encapsulated, they do not appear to grow invasively and only two metastases (in both these cases only secondary tumours were forwarded for examination) were encountered.

(As part of a wider survey of the incidence of diseases in dairy cattle, undertaken in co-operation with the Department of Veterinary Hygiene and Preventive Medicine, all animals which die on a large dairy farm or are slaughtered for food are examined. So far, specimens from 153 animals have been examined and the only skin tumours observed were four fibropapillomata.)

Sheep (12)

The number of tumours observed in skin and subcutaneous tissues may be small since the growth must reach a large size before becoming visible through the fleece.

Fibropapillomas of the Skin (5).—Only five have been encountered, all in females. They resembled the bovine type, showing an excess of fibrous tissue and with ulceration of the overlying epithelium. No recurrence or metastasis was encountered.

Epithelial Tumours of the Skin (1).—One locally invasive squamous cell carcinoma was examined from the ear of an aged Cheviot ewe.

Fibroma (1).—One typical subcutaneous encapsulated fibroma was encountered in the precrural region of an aged blackface ewe. Exuberant granulation tissue masses found in the mammary region after necrotising mastitis have not been considered as neoplasms.

Lymphosarcoma with Dermal and Subcutaneous Involvement (5).—Thirteen generalised lymphosarcomas were encountered, three showing dermal involvement and two with subcutaneous nodules 1 to 2 cm. diameter which were localised but not encapsulated.

Incidence of Tumours in Sheep.—When Morgan, Parnell & Rayski (1951) made their survey of worm burdens in Cheviot sheep by slaughtering sheep from Scottish hill farms, we examined all lesions encountered. The only tumour encountered in this series was an adenocarcinoma of the large intestine. Routine autopsies have been carried out also on all blackface sheep dying on one local hill sheep farm. No tumours have been encountered in 125 animals examined.

Pig (0)

Of 36 tumours examined, none involved the skin or subcutaneous tissues.

(A similar scheme to that outlined when discussing incidence of bovine tumours is in force at one local Large White pig breeding research station. So far only one tumour, a glioma, has been encountered in the 1,703 pigs examined.)

Cat

Seven hundred and seventy-seven feline biopsy and autopsy samples have been examined and from these 125

tumours have been diagnosed, 26 of which involved the skin or subcutaneous tissues.

Highly Keratinised Papilloma (2).—Two conical tumours on the neck, which did not recur after removal.

Epithelial Tumours of Skin

Squamous Cell Carcinoma (1).—One tumour on the lip of a nine-year-old cat. No evidence of metastasis.

Adenocarcinoma of Sweat Glands (2).—One case on the lip, the other in an 11-year-old black tom cat in the external auditory meatus associated with chronic otitis. Neither metastasised.

Basal Cell Carcinoma (8).—Occurred in the older age groups, in all sexes (entire and neutered) and at all sites; in one case the lesions were multiple. A recurrence was observed in one case but no metastasis was detected.

Fibroma and Fibrosarcoma (9).—Occurred in adult animals, in all sexes, and in all sites and were always solitary. In two cases there were recurrences but no metastases were observed.

Cavernous Haemangioma (1).—One tumour in the flank region of a 10-year-old castrated male cat.

Tumours of Lymphoid Series (1).—Of 23 generalised lymphosarcomata, one in a one-year-old castrated male tabby cat involved the subcutaneous tissue.

Miscellaneous (2).—Two solitary subcutaneous ulcerated tumours were seen involving the digit; one was composed of mast cells, the other of eosinophils.

DOG

Three thousand, six hundred and forty-seven canine biopsy and autopsy samples have been examined and from these 1,732 tumours have been diagnosed, 709 of which were associated with the skin or subcutaneous tissues.

Papilloma (81).—The age distribution suggests two aetiologically different types. Both types are multiple and show no breed or sex predilection. The viral papillomata are seen in young animals and are most common at the skin/mucous membrane junction of the lips and in the mouth, but also occur over the body and limbs. Papillomata in aged animals are almost all in the head region and are much smaller than the viral type.

Squamous Cell Carcinoma (36).—Usually solitary, occur on the trunk or legs at all ages but more commonly in older animals. They seem to be more frequent in males but no breed incidence could be detected. Of 36 cases, six had metastasised to the local lymph nodes and three of these showed blood-borne metastases in the lungs.

Calcinosis and Calcified Epithelioma (14).—Most common in the female and most often seen on the leg and involving the pads. All except two cases were solitary.

Basal cell carcinomata and tumours of the glands of the skin form a group which can be subdivided into several main structural patterns but individual tumours occur showing a structure intermediate between the main types.

Basal Cell Carcinoma of Superficial Origin (28).—Appears to be more common in males, most common on the limbs; solitary. May be solid or cystic in structure. Two of 28 tumours metastasised to the local lymph nodes and one to the lung. Three showed recurrence after removal.

Basal Cell Carcinoma of Subepidermal Origin (21).—Characteristic "medusa head" structure histologically with the long axis of the nucleus at right angles to the long axis of the cell columns. They appear more frequent in the male; only one case was multiple; most common in the head and neck regions. No metastases observed but three tumours recurred after removal.

Glandular Tumours of Sweat Glands (17).—Solitary in all cases except one, found in all regions; no recurrence or metastasis seen. All variations from simple adenoma to cystadenoma were found.

Glandular Tumours of Ceruminous Glands (1).—A locally invasive adenocarcinoma involving the modified sweat glands of the external auditory meatus was found, associated with chronic otitis.

Sebaceous Papilloma (49).—Usually multiple, white, small papillomatous growths on the head and legs of aged animals, commonly males.

Glandular Tumours of Sebaceous Glands (6).—Solitary, occurred in male animals, and showed progressive growth but no recurrence or metastases. Histologically their parent tissue can be recognised in only a few areas.

Adenoma of Modified Perianal Glands (82).—Solitary or multiple around the lips of the anus. All except four cases were in males. Only one tumour metastasised to the drainage lymph nodes; seven tumours recurred after removal.

Similar tumours were found in the preputial region (nine cases), tail (six cases), trunk (three cases), toe (one case). They were usually multiple and all were in males. No metastases or recurrences were noted.

Subcutaneous Tumour of Fibrous Tissue (79).—These tumours are found in all age groups but mainly older animals. More common in males, usually solitary, most common on the limbs. Eleven recurred after removal and one metastasised to the local lymph nodes.

Lipoma (1).—One tumour containing immature fat cells was found in a six-year-old male poodle.

Acquired Lipomatoid Masses (29).—Circumscribed masses of adult fat cells were found, mainly in the chest and flank regions in elderly animals, with a predisposition to the female. They probably represent disorders of fat metabolism.

Cavernous Haemangioma (19).—No sex or site predisposition could be found; they were small and no metastases or recurrences were noted.

Lymphangiomas (2).—Two were found, one in the flank of a two-year-old Spaniel male which showed a cavernous angioma in the other flank; the other in the inguinal region of an 11-year-old male Spaniel.

Tumours of Lymphoid Series Involving Subcutaneous Tissue (1).—In 58 cases of generalised lymphosarcoma, only one showed subcutaneous involvement (eyelid).

Mast Cell Sarcoma (29).—Occur in the older age group, in both sexes, at all sites over body and legs. In only two of 29 cases was there generalised involvement; of the 27 solitary tumours three showed recurrences and there were two cases of metastases in the local lymph nodes.

Histiocytic Cell Sarcoma (127).—Found mainly in young animals, in all sites, chiefly in the male animal, and solitary in all except three cases. No metastases were seen but in seven cases there were recurrences.

Other Subcutaneous Mesenchymal Tumours (23).—A variety of types, not fitting into any of the above types.

Tumours of Melanin-producing Cells (64).—Appeared to be more common in males; multiple in 10 cases. The commonest sites appeared to be the foot and preputial regions. Fourteen cases showed recurrences and seven showed metastases.

In connection with the apparent sex incidence of the tumours in dogs, it should be noted that the sex distribution of the total of 3,647 samples examined has been taken into account (45 per cent. males, 37 per cent. females, 18 per cent. not known).

Summary

Brief descriptions are given of skin tumours in domestic animals, based on a series of 895 cases (horse 52, ox 96, sheep 12, cat 26, dog 709).

Acknowledgments.—The author is indebted to members of the staff of the Clinical Department of the Royal (Dick) School of Veterinary Studies, Mr. J. Norval, M.R.C.V.S., Dr. H. P. Donald and to veterinary surgeons in general practice for the material on which this paper is based; he is also grateful to Professor Robertson and Dr. Morgan for assistance in the provision of figures relating to incidence of neoplasms in certain cattle, sheep and pig farms.

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SUMMARY AND CONCLUSIONS

E. G. White (Liverpool): Skin diseases cover a very wide field and this symposium has of necessity dealt with only a small part of it. Animal parasites, the most important causal agents, have been omitted and little or no mention has been made of nutritional disorders, poisonous plants, drugs or physical agents which cause skin injury, or the healing of wounds.

Until recent years, the infective diseases of the skin, those caused by animal parasites, bacteria and fungi, received most attention, and relatively little study was devoted to non-infective conditions like eczema, urticaria, photosensitisation, alopecia or seborrhoea, except for the empirical use of drugs and hormones in their treatment. More recently we have seen fundamental work on the mechanism of photosensitisation, on the part played by histamine in producing skin changes and the development of antihistamine drugs, and the influence of hormones and nervous factors on skin structure and function. In spite of this change of emphasis there is still much that is not known about such conditions, and their treatment is still to a large extent unsatisfactory, in that it is designed to alleviate symptoms rather than to deal with exciting causes.

Veterinary medicine suffers from a lack of dermatologists, specialists who have devoted many years to a study of the skin as a living tissue and not merely as a protective covering to which therapeutic agents can be applied. The importance of skin as a tissue and of the host as well as the parasite has been stressed by Lovell and Blakemore and it is clear that more fundamental work requires to be done on the anatomy, histology and physiology of the skin of animals if we are to understand how skin diseases develop. Without that knowledge we can do little to prevent them.

Neoplasms of the skin are very common in the dog and cat, and certain types of skin tumour are quite common in other species. Head's survey of some 900 skin tumours is a valuable contribution to knowledge, for the histological classification of tumours, along with a study of their site, rate of growth, recurrence after removal and tendency to metastasis afford a basis for their rational treatment, as well as adding to the knowledge of neoplasia as a whole. Tumours in domestic animals are so similar to those which occur in man that any contribution to knowledge which veterinary medicine can make is an addition to our knowledge of human cancer. The relationship between animal diseases and public health was illustrated by Rewell's account of the transmission of skin diseases between man and animals and by Ainsworth's discussion of the pathogenic fungi of the skin.

Endocrine and nervous disorders of skin form an important group of diseases in man. Of nervous skin diseases we know little in animals. Endocrine disorders have long been recognised in animals and treatment with thyroid extract has been popular although results have been variable. Jennings' account of alopecia in dogs, associated with testicular tumours, provides a clear example of endocrine control over skin function and gives a rational basis for treatment.

The last 50 years have seen considerable success in the control of many of the diseases due to infective agents. Sheep scab has been almost eradicated through the use of efficient dips, notification and State control. Farcy was eliminated by the use of mallein and control of importation of horses. Parasitic mange of horses has not been seen here for several years and other skin diseases of the horse are of less common occurrence, due at least in part to the great reduction in the horse population. The widespread use of the newer insecticides has helped to control mange parasites, fleas and lice in all species of domestic animals. Better knowledge of nutrition and animal husbandry will help to reduce the incidence of fungus diseases. Whereas 50 years ago a symposium such as this might have been devoted to farcy, grease and mange, to-day's discussion ranged largely around the bacterial flora of the skin, nutrition, hormones and allergy and stressed the importance of the study of the skin as a living tissue, rather than a mere protective physical covering.

The greatest need in veterinary dermatology is for fundamental work on the anatomy, histology, physiology and experimental pathology of the skin. We still tend to think of skin in the various species as being the same, whereas there are wide differences in structure and function and we are unlikely to understand how skin diseases develop unless we know the behaviour of the living tissue in which they occur. There is scope for a team of workers to devote some years of effort to a study of the structure and function of the skin of domestic animals, the reactions to injury caused by various kinds of irritant, and the relation of skin changes to the activities of other organs and tissues. If this symposium should help to arouse an interest in the study of the skin it will have served a useful purpose, quite apart from its value as a contribution to knowledge in certain selected fields.

" TECHNICOLOR " EGGS

" Australian scientists," says the Sydney Correspondent of the *Western Mail* (Cardiff), " are fascinated by the performance of the Dominion's most celebrated hen—an Australorp in the flock of Mr. A. K. Ingliss, of Pinaroo, South Australia, which lays ' technicolor ' eggs. The eggs range in colour from light pink and red to deep purple—and the chickens which hatch from the eggs are sometimes black, sometimes white. The case has been discussed widely in technical poultry journals and investigated by the South Australian Government's Institute of Medical and Veterinary Science.

" The Institute's ranking expert, Dr. P. S. Watts, has confessed himself mystified. Another expert, Dr. J. Roman, believes that two weeds on the Ingliss property could tint the egg-shells and produce the ' technicolor ' effect. But why this hen alone should be affected nobody knows, and controversy is still raging."

THE VETERINARY RECORD

December 26th, 1953

SKIN DISEASES IN ANIMALS

THE proceedings of the recent meeting of the Association of Veterinary Teachers and Research Workers, published in this issue, have once again directed attention to some of the problems connected with skin diseases in animals—diseases which can be the cause of so much trouble to the veterinary surgeon and of so much discomfort to the animal. While much is known about this group of diseases, much more remains to be discovered and this is pre-eminently a field in which the research worker and the clinician can work together to great mutual advantage.

To be understood properly, the various pathological changes that occur in the skin must be related to its histology, metabolism, circulation, and so on and, as was pointed out in the summing up, much more fundamental work is needed on these aspects of the skin of the normal animal. The skin is, of course, a living tissue and should be thought of as an organ—indeed, the largest organ of the body—and not as merely a passive tissue for bacteria, viruses, fungi, parasites, hormones and allergens to mutilate. A profitable field of research will also be found in a study of the histopathology of skin conditions in animals. Difficulties abound here, for such common findings as vesiculation, oedema, hyperkeratosis, etc., may occur in response to a large number of widely different inciting agents, while on the other hand, lesions of a similar histology may often be associated with very different clinical pictures.

In almost all skin conditions two causes can be determined—the predisposing cause and the exciting cause. The knowledge that in many cases the underlying cause of skin diseases appears to be some disturbance of the animal's metabolism suggests that, while topical applications may be helpful and even specific in the treatment of some diseases, in others treatment may often be confined to the use of a good bland soothing dressing, while attention is directed to the actual cause. For example, prevention and treatment of animal dermatomycoses may well in future be directed away from fungicidal or fungistatic compounds towards a correction of the nutritional status or endocrine balance of the animal.

Again, as was indicated, diseases of the skin not only offend aesthetic taste but also have serious economic repercussions since the coverings of animals are widely used by man, and leather and wool products are often damaged, particularly by parasitic skin diseases. The importance of skin diseases as a public health hazard, too, cannot be over-estimated.

It is to be hoped that this symposium, and the recent Congress paper on this theme, will stimulate the clinician to record his observations in the field of skin diseases, and that the research worker will be encouraged to study still more closely the numerous problems thus brought to his notice.

CLINICAL COMMUNICATION

CARCINOMA OF THE TONSIL OF A DOG: SURVIVAL FOR 20 MONTHS AFTER TONSILLECTOMY

Miss C. M. VAN DORP, F.R.C.S., D.L.O.

AND

W. H. CARR, B.V.SC., M.R.C.V.S.

Although carcinoma of the tonsil (Withers, 1939) is one of the commonest malignant neoplasms of the alimentary tract in dogs (Cotchin, 1951), surgical treatment is not usually attempted, as cervical lymph node metastases have often developed by the time the animal is presented for examination. Further, while the primary lesion is radiosensitive, the lymph node metastases are much more resistant (Knight, 1953). We wish to record symptom-free survival for 18 months after excision of a neoplastic tonsil.

A four-and-a-half-year-old Springer Spaniel bitch developed progressive difficulty, over a period of six weeks, in swallowing anything but fluid or semi-fluid food. The left tonsil, which was enlarged to the mid-line, was normal in colour, had a smooth surface, and was hard but mobile. Biopsy of the tonsil showed a non-keratising squamous carcinoma, with regular cell-nests but numerous mitotic figures. The cervical lymph nodes on both sides were enlarged, but this was considered to be due to secondary inflammatory changes. As the symptoms were entirely due to mechanical obstruction, and the dog was in good condition, tonsillectomy was thought to be justified, and was easily carried out under nembutal anaesthesia. The lesion appeared to be confined to the tonsil. The bitch made a good recovery, and the enlargement of the cervical nodes disappeared completely on the left side and partly on the right. She produced a litter of eight healthy puppies six months after the operation, and remained fit and symptom-free for a further 12 months, when an obvious metastasis developed in the left cervical lymph nodes. Two months later she again developed difficulty in swallowing, due presumably to a local recurrence, and began to lose weight rapidly. The owner had her destroyed, and unfortunately there was no opportunity to examine her again.

The neoplastic tonsil was examined histologically by Dr. E. Milford Ward, Senior Group Pathologist, Leicester Hospitals. He found the squamous cell carcinoma reported in the biopsy specimen to be present, but localised to one small area of one block. There was a pleomorphic reaction in the lymphoid tissue of the tonsil, with marked sinus hyperplasia and compression of the lymphoid follicles; there were also many fibroblasts and multinucleated cells similar to Dorothy Reed cells. Many large phagocytic cells were filled with blood pigment. This was thought to be the result of the biopsy, but the close similarity of the picture in the tonsil to Hodgkin's disease of man is of great interest.

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ABSTRACTS

Biochemical Processes in the Lactating Udder*

The udder from a lactating cow was arranged so that each half was perfused in a similar manner without mixing of blood. The perfusate of cow blood was the same for each half except that the left half contained $CH_3{}^{14}COONa$, while $NaH^{14}CO_2$ and heavy water (D_2O) was added to the blood perfusing the right half.

The authors stress the rigid control necessary before the perfusion technique can be used to explain the biochemical processes occurring in the intact lactating udder. The perfusion conditions of this experiment were not ideal but the following results were obtained. Milk fat and lactose obtained from the left half of the udder, that containing "labelled" acetate, were radioactive. The milk fat and lactose obtained from the right half of the udder, the half perfused with blood containing "labelled" bicarbonate as well as heavy water, showed a negligible radioactivity. It follows, therefore, that udder tissue is capable of using acetate for the formation of milk fat, probably by a condensation process utilising fatty acids of various chain lengths in the synthesis. In the formation of lactose by the udder, acetate carbon also is utilised but, as in the case of milk fat, the carbon cannot be derived from bicarbonate.

Cholesterol isolated from the milk and udder tissue perfused by the blood containing "labelled" acetate was radioactive, thus confirming previous work that cholesterol is synthesised by the udder.

F. R. B.

* **Synthesis of Milk Fat from Acetic Acid by the Perfused Isolated Bovine Udder.** Cowie, A. T., *et al.* (1951). *Biochem. J.* **49.** 610–615.

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Safety of the Milk Supply*

This contribution to a plenary session at the Congress is chiefly concerned with the principal diseases communicable to man from milk and with the measures adopted in the U.S.A. to ensure the safety of the milk supply.

The author, after giving an historical review of the milk-borne diseases—tuberculosis, brucellosis, Q fever and enteric infections—states that the campaign for safe milk is largely governed by the insistence of the people that the cattle be free from disease and that the personnel handling the milk should also be healthy. In the U.S.A., where 85 per cent. of the milk is pasteurised, there has been a dramatic fall in the incidence of communicable diseases.

S. J. E.

* **Relation between Milk Hygiene, the War against Contagious Diseases, and the Public Health** (Trans. title). Steele, J. H. (1953). *XVth Int. Vet. Congress, Stockholm.* **1.**

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Propagation of African Swine Fever Virus*

Eight-day embryonated eggs were inoculated into the yolk sac with tissues from a pig which had responded to infection with rabbit-passaged African swine fever virus, re-incubation of the eggs being carried out at 33° C. Ten of 11 such eggs died on the fifth and sixth days. These were harvested, the extract mixed with antibiotics and passed similarly to embryonated eggs, the process being repeated for 12 consecutive passages. Eighty-six of 118 such eggs died on the fifth and sixth days, in contrast to normal eggs incubated at 33° C. in which the mortality occurred between the 9th and 11th days. A pig inoculated with third passage material reacted typically. Another pig inoculated with seventh passage material also reacted typically and tissue extract from it infected eggs successfully, material harvested from the dead embryos being used to initiate four passages in eggs. In this series the embryos died on the fifth and sixth days, as before.

A. W. G.

* **The Propagation of African Swine Fever Virus in the Embryonated Hen's Egg.** McIntosh, B. M. (1952). *J. S. Afr. vet. med. Ass.* **23.** 217–220. (13 refs.)

REVIEW

[Veterinary Dermatology. By Frank Král, v.m.d., m.v.d. (*h.c.*) doc. habil., Associate Professor of Veterinary Medicine, University of Pennsylvania, and Associate Author Benjamin J. Novak, ed.d., Chairman, Science Department, Murrell Dobbins Vocational-Technical School, Philadelphia. (1953: first edition. Pp. 325 + xv. 124 figs. Philadelphia, London, Montreal: J. B. Lippincott Co., East Washington Square, Philadelphia. $10.00.]

A text-book devoted entirely to veterinary dermatology has not hitherto appeared in veterinary literature. The lack of one has been felt for many years and the authors of this book are to be congratulated on their attempt to make good this deficiency. The task has no doubt been Herculean and one wonders if too much has been attempted for a first edition. Without decrying the references to such diseases as foot-and-mouth, anthrax, rinderpest and hog cholera, more attention should have been paid to diseases more intimately associated with the skin. Under Dermatomycosis, for example, ringworm in the cat is described in 14 lines and in the dog in 45 lines.

The book is printed on good art paper and there are some excellent photographic illustrations. Skin diseases, however, more than any other groups of diseases, lend themselves to photographic recording, and such photographs can be of inestimable help to the student and practitioner. The present book would be of greater value if it contained many more illustrations, *e.g.*, of photosensitisation, sarcoptic mange and ringworm in cattle.

The giving of references in a text-book is always commendable and the lists in this book are welcome. It is surely the duty of authors, however, to sift these references carefully and to avoid those which lack sufficient scientific background. It is felt that for these reasons a number of references quoted in "Veterinary Dermatology" might have been excluded. Are eczemas associated with nephritis, feeding fish meal, food allergy and deficiency of female hormones sufficiently accepted by the veterinary world to justify their inclusion in a book which may be placed in the hands of the undergraduate? The space taken up by such debatable material might more profitably have been used to include a key to the identification of fungi and ectoparasites.

This book certainly deserves a place in every veterinary reference library. The teacher, however, may wish to warn the undergraduate that he will not be able to find in the book all that he requires in dermatology and must not accept lock, stock and barrel, all that it contains.

His Grace the Duke of Norfolk, K.G., P.C., G.C.V.O., and Major-General the Right Hon. the Earl of Athlone, K.G., P.C., G.C.B., G.C.M.G., G.C.V.O., D.S.O., F.R.S., have accepted election as Vice-Presidents Emeriti of the Royal Sanitary Institute, an honour conferred upon them by the Council of the Institute.

Weekly Wisdom

Frudery is a plant difficult to rear in the soil of hunting counties.—Octavius Francis Christie: (Decd. December 19th, 1953). "The Transition from Aristocracy."

QUESTIONS IN PARLIAMENT

Fowl Pest (Slaughter Policy)

Lieut.-Colonel Bromley-Davenport (December 10th) asked the Minister of Agriculture how long it is intended to continue the present policy of slaughter in the case of outbreaks of fowl pest; and whether he will consider changing that policy to one of vaccination.

Sir T. Dugdale: I am satisfied that in present circumstances it would not be in the public interest for me to discontinue the slaughter policy in favour of vaccination.

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Hard Pad (Scotland)

Major Anstruther-Gray (December 15th) asked the Secretary of State for Scotland if he will make a statement regarding the incidence of hard pad in Scotland, comparing the present position with that of the previous two years.

Mr. J. Stuart: Hard pad is not a notifiable disease and accordingly no statistics are available. My information is, however, that the disease is certainly not more prevalent now than it was two years ago.

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Hard Pad (Vaccine)

Mr. E. Wakefield (December 18th) asked the Minister of Agriculture what information he has on the efficacy of the vaccine prepared in the United States of America, details of which have been sent to him, in immunising dogs against hard pad; and what steps are being taken to manufacture vaccine of similar properties in England.

Sir T. Dugdale: None, but a vaccine prepared on similar lines is available to veterinary surgeons in this country. I am advised that if it is used in accordance with the maker's instructions, this vaccine gives a high degree of protection against hard pad.

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Meat Supplies (Foot-and-Mouth Disease)

Dr. Stross (December 14th) asked the Minister of Food what precautions will be taken to prevent the importation of meat derived from the slaughter of animals suffering from foot-and-mouth disease.

The Minister of Food (Major Lloyd George): Under the meat inspection arrangements made with the exporting countries they certify that all meat consigned to this country comes from animals passed in accordance with our standards. In addition, sample inspections are made at the port of entry by the Port Health Authorities assisted where requested by my meat inspectors.

Dr. Stross: Does that mean that meat imported from France, where, until lately at least, the custom has been to slaughter animals suffering from foot-and-mouth disease and to use their meat for human consumption, will not be imported if there is any suspicion that the meat is from contaminated sources?

Major Lloyd George: I can give that assurance.

Mr. Royle: Have the right hon. and gallant Gentleman's veterinary advisers recently expressed any opinion that foot-and-mouth disease can be carried in the bone—a new theory which was being examined some time ago?

Major Lloyd George: I cannot give a definite answer to that question. I can only say that I am very carefully advised by the veterinary officers of the Ministry of Agriculture as well as by my own officers. I will look into that point.

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Ministry of Agriculture (Staff)

Sir A. Bossom (December 14th) asked the Minister of Agriculture what improvement in the efficiency of the working of the general Division has been effected since an increased number of higher executive officers and executive officers have been employed.

Sir T. Dugdale: The increased efficiency of the Division cannot be exactly assessed, but there is no doubt that the additional staff have enabled the Division to deal more effectively with the necessary increase in public relation work and also in the provision of technical information.

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Cattle, Kent (Tuberculosis)

Mr. P. Wells (December 17th) asked the Minister of Agriculture how many cattle were examined in the county of Kent under the Tuberculosis Order, 1938, for the 12 months ended August 31st, 1953; and with what result.

Sir T. Dugdale: Veterinary inspections of about 50,000 cattle in dairy herds in Kent were made during the 12 months ended August 31st, 1953. Seven animals were found to be affected with tuberculosis within the meaning of the Tuberculosis Order, 1938, and were slaughtered.

NOTES AND NEWS

BRITISH VETERINARY ASSOCIATION
CHANGE OF ADDRESS

MEMBERS, OTHER READERS AND ADVERTISERS are requested to note that the

ADDRESS OF THE BRITISH VETERINARY ASSOCIATION AND "THE VETERINARY RECORD"

is now

7, MANSFIELD STREET, PORTLAND PLACE, LONDON, W.1.

Telephone number: Museum 6541

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Diary of Events

Jan. 6th.—Meeting of the Association of Veterinary Teachers and Research Workers, at the Royal (Dick) School of Veterinary Studies, Edinburgh, 10 a.m.

Jan. 13th.—Meeting of the R.A.V.C. Division of the B.V.A., at Langley Court, Beckenham, Kent.

Jan. 13th.—Meeting of the Editorial Committee, B.V.A., at 7, Mansfield Street, W.1, 2.30 p.m.

Jan. 14th.—Meeting of the South-Eastern Division, B.V.A., at Maidstone (Royal Star Hotel), 2.30 p.m.

Feb. 26th.—University of Liverpool Veterinary Society Annual Ball, in the Students' Union, Bedford Street, Liverpool.

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Change of Date of Next Meetings of Council and Committees, B.V.A.

Owing to the fact that headquarters has moved to 7, Mansfield Street just before Christmas, the meetings fixed for early January (6th, 7th and 8th) have been postponed until Wednesday, Thursday and Friday, January 20th, 21st and 22nd, 1954.

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Transference of B.V.A. Offices to Mansfield Street, W.1.

With the transference of B.V.A. offices on Friday of last week, December 18th, 1953, after 17 years' occupancy of 36, Gordon Square, W.C.1, and under its new name, the British Veterinary Association entered upon a new era—one, let us hope, of even greater growth and progress—when it took possession of its fine new home at 7, Mansfield Street, Portland Place, London, W.1.

The formidable business of moving into the gracious building acquired by the Association—which was illustrated, without and within, in our issue of April 4th—was accomplished without a hitch. Members will appreciate their ownership of a house of character and distinction and with such features as a fine staircase, Adam ceilings and mantelpieces. Also welcome will be the move to more

spacious and attractive committee rooms, while they will be glad to know that the secretarial work on the ground floor and that of the editorial department on the first floor will be carried on under considerably improved conditions of space and amenity.

A hearty welcome is extended to all members of the profession to view the new offices, for which purpose reference to the street map, also published in our issue of April 4th, will be found of service.

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ROYAL COUNTIES DIVISION, B.V.A.

Mr. K. E. Brown has now been succeeded as Secretary by Mr. D. G. Howell, B.SC., DIP. BACT., M.R.C.V.S., of A.R.C. Field Station, Compton, Nr. Newbury, Berks.

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PERSONAL

Professorship for Dr. Reginald Lovell

Among the titles recently conferred by the University of London is that of Professor of Veterinary Bacteriology, upon Dr. Reginald Lovell, PH.D. (LOND.), D.SC., (MANCH.), M.R.C.V.S., D.V.S.M. (VICT.), of the Royal Veterinary College, London.

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Births.—Holford.—On December 18th, 1953, to Lorna Robertson, wife of Geoffrey Holford, M.R.C.V.S., Mo Dhachaidh, Dunkeld, Perthshire, a second son.

Macqueen.—On December 14th, 1953, at Darenth, Wrotham, Kent, to Ann and Freddy Macqueen, a son—Michael Robert.

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R.C.V.S. OBITUARY

Rattee, William, M.R.C.V.S., 53, Christchurch Road, Norwich. Graduated Edinburgh, May 15th, 1889. Died December 3rd, 1953; aged 90 years.

Mr. Rattee, who was the son of the late Mr. Daniel Elmer Rattee, of Fundenhall, was at one time a well-known figure on the Norwich cattle market. He worked as a veterinary surgeon in Norwich for many years, joining Mr. Harry V. Low in St. Giles about the time of the first world war and remaining until his retirement about 15 years ago.

Mr. Rattee is survived by his widow and one daughter, with whom deep sympathy is felt in their bereavement.

Spurgeon, Charles Henry, M.R.C.V.S., Fairfield Cottage, High Street, Petworth, Sussex. Graduated London, July 24th, 1896. Died November 22nd, 1953; aged 80 years.

Wilson, Frank Walter, C.B., C.M.G., F.R.C.V.S., Colonel A.V.S. (retd.), of 3, Sea Hill House, Seaview, Isle of Wight. Graduated London, May 23rd, 1891. Died December 18th, 1953; aged 84 years.

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THE PESTS BILL: PROHIBITION OF SPRING TRAPS

The text has been issued of the Pests Bill, which has for its object implementation of the Government's conclusions on the report of the Committee on Cruelty to Wild Animals, of which Mr. J. Scott Henderson, Q.C., was Chairman.

It seeks to provide power for the Minister of Agriculture and the Secretary of State for Scotland to appoint a day, not earlier than the end of July, 1958, for the prohibition of the use or sale of spring traps, other than approved traps, for the purpose of killing or taking animals.

Under the Bill the Minister could, by Order, exclude from the operation of the Bill traps adapted solely for the destruction of rats, mice and other small ground vermin. The Bill proposes to replace the prohibition in existing legislation of the use of spring traps for the killing or taking of hares or rabbits, except in a rabbit hole, but the Minister would be enabled to permit open trapping in certain cases, either by general regulations or in accordance with a licence.

The Bill also provides for the more effective control of rabbits by the designation in Great Britain of rabbit clearance areas, in which occupiers of land will be under an obligation to take all necessary action to destroy rabbits. Before rabbit clearance orders are made, the Ministers would be required to consult persons concerned in the proposed area.

The Bill proposes to empower the Ministers to require the clearance of rabbit-infested scrub and the taking of other measures to reduce rabbit harbourage or to contain rabbits. The Bill also proposes to enable the Minister to contribute towards the cost of destroying the breeding places of rabbits or of containing them. The Ministers believe that if myxomatosis were to spread it would be all the more necessary to intensify ordinary measures for the destruction of rabbits, such as trapping and gassing, to ensure the elimination of those rabbits not killed by the disease.

The agricultural departments are conducting tests of new humane traps, but there is not yet sufficient experience to ensure that they would be an effective substitute for spring traps in common use.

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ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Fowl Pest:

Isle of Ely.—Leige Cottage, Tills Bridge, Outwell, Wisbech (Dec. 18).
Lancs.—Carry, Hey's Farm, Colne (Dec. 18).
Middlesex.—49, Graham Avenue, West Ealing, W.13 (Dec. 18).
Wilts.—Whiteshoots, Redlynch, Salisbury (Dec. 18).

Swine Fever:

Beds.—Cotton End Farm, Eastcotts, Bedford (Dec. 16); Mollivers Farm, Bromham, Bedford (Dec. 18).
Cheshire.—Lea House Farm, Nantwich Road, Wimboldsley, Middlewich (Dec. 18).
Cornwall.—R.A.F. Station, St. Eval, Wadebridge (Dec. 16).
Essex.—Hawkin's Farm, Cock Clarks, Purleigh, Chelmsford (Dec. 16); Harneis Yard, Inys Lane, East Street, Rochford; Casita, Bromford Drive, Wickford (Dec. 17); Laylands, Sudbury Road, Downham, Wickford (Dec. 18).
Isle of Ely.—Lynn Road, Chettisham, Ely (Dec. 18).
Norfolk.—Norwich Road, Cawston, and Lambert's Farm, Marsham, Norwich (Dec. 18).
Perth.—Burnmouth Piggery, Stanley, Perth (Dec. 18).
Suffolk.—Holywell Farm, Holywell Row, Mildenhall (Dec. 16).
Warwicks.—Wayside Farm, Anstey, Leicester (Dec. 17).
Worcs.—Joes Farm, Great Comberton, Pershore (Dec. 18).

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Rearing Store Cattle

Mr. Richard Phillips, M.SC., in the course of a talk entitled "The Rearing of Store Cattle" at Llanidloes on December 17th, 1953, pointed out that differences in climate and soils determine those areas where animals are reared and those where they are fattened. The transfer from one area to another occurs through the medium of the store stock marts, and the buyers select the cattle that suit them, bearing in mind that they must also provide the finished beast that suits the customer.

The wishes of the customer will be of great importance from now on as the housewife as consumer will have the opportunity to buy what she wants and when she wants it. It is already plain that too much fat in carcase meat is not fancied, therefore store cattle when finished and offered to the customer should show a high proportion of tender lean meat to fat. In addition the butcher will require that the animal will yield a high percentage carcase. Each year about 2,000,000 cattle or about 20 per cent. of the cattle population are slaughtered, consisting of steers, heifers and the wastage out of the breeding and dairy stock in cows and bulls. Before the war steers were the more numerous, but since 1940 the three categories have become much closer together in numbers. Although Wales is now a land of a million cattle, due mainly to the increase in dairy stock, it is surprising to find that the number of cattle under one year old in the June 4th returns has remained around 200,000. Eventually some of these will replace some of the cows, but in general 100,000 are sold through the Collecting Centres in Wales and 100,000 for export into England.

Beef remains our most important item of meat and about 50 lb. are consumed each year per head of the population of which slightly over one-half is home produced. The annual consumption of mutton and lamb per head is 25 to 30 lb. of

which only a quarter is home produced. What are the requirements of the trade?

1. Expansion. The country needs many more calves reared for beef, the £5 calf subsidy is designed to encourage this increase.

2. More rapid turn-over. Many beef cattle are over age and over fat when sold for slaughter. A daily live-weight increase of 1 lb. spread over two and a half to two and three quarter years (1,000 days) gives an animal about 11 cwt. live weight when slaughtered. It is possible and desirable to get a higher rate of daily increase. A fat animal of 11 to 12 cwt. of the right quality is the best for our meat trade. Thus killing younger animals which have increased in weight more rapidly would speed up the turn over.

3. Quality of carcase. Here undoubtedly the foundation lies in breeding the right class. The Hereford both as the pure bred and the colour marked crossbred is one of the best. Its conformation, rapidity of growth and fattening as well as the final quality of the carcase are what is needed. An attempt should be made to secure these objectives.

First—fatten the land in order to fatten the animals.

Secondly—produce the necessary quantity of winter food of the right quality.

Thirdly—rear for the first six to eight months at a high plane. A good start ensures a grand finish. The Cambridge experiments show this quite clearly.

In order to increase production expansion and intensification are vital. Expand through reclamation—drainage, liming, pioneer crops and reseeding. Intensify through manuring and management of the pastures. Conserve winter fodder, when the growth is in the leafy stage as silage.

The life of a store animal on its home farm is short—12 to 24 months. Nowadays there is a trade, and a good one, for the six- to eight-month-old weaned beef calf and the £10 *per cow* subsidy should encourage the production and sale of such animals. For this purpose early calving is advisable and it is interesting to remember that autumn and early winter born calves make more rapid progress than those born in late spring and early summer. In this short life the critical period is in the early calfhood stage. A calf is sensitive to food, cold and heat. Hence care in feeding, a warm, well-lit cot and shelter from the hot sun are arrangements in husbandry that need attention so as to promote the health and the maximum live-weight increase of the animals. Farmers should plan their buildings as well as the daily routine of feeding and management so as to be able to deal with increasing numbers with the minimum waste of time, energy and material—all expensive items.

The Welsh store cattle trade remains important in many parts of Wales; the producer must study more carefully the requirements of the purchaser. L. E. H.

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UFAW VETERINARY SECTION

Annual Meeting at Warwick

The annual general meeting of the Veterinary Section of the Universities Federation for Animal Welfare was held at Westham House, Barford, Warwick, on Friday, September 25th, 1953, at 2 p.m., with Mr. C. T. Murphy, M.R.C.V.S., President of the Section, in the chair.

The Section was privileged to hear from its President-Elect, Professor J. G. Wright, of Liverpool University, an address on "Anaesthetics in Animals, with special reference to the Animals Anaesthetics Act, 1919," which was both entertaining and instructive.

Explaining the provisions of the Anaesthetics Act, 1919, Professor Wright commented that it is now noteworthy more for its omissions than for its inclusions: why, for instance, was a tom cat of five months and thirty days supposedly unable to feel pain and on the next day requiring general anaesthesia for the operation of castration?

Now that the practice of surgery upon animals is restricted by the Veterinary Surgeons Act of 1948 to the qualified veterinarian, the choice of anaesthetic could safely and properly be left to his discretion. The new Bill amending the 1919 Act would safeguard animals by applying to all surgical operations the provisions of the Protection of Animals Act, 1911.

Professor Wright then went on to give a most lucid and comprehensive account of the factors governing the choice and administration of an anaesthetic. He pointed out that the actions of animals are more predominantly reflex in character than those of a human and hence animals are more difficult to anaesthetise. To his knowledge no one has succeeded in hypnotising a cow in the way that a human could be hypnotised.

In deciding dosage the veterinarian had to consider not only weight, age and health but also species differences. It was necessary in assessing the action of any anaesthetic to measure its influence on the more difficult members of the species rather than the easy ones, for example, a vigorous hunter and not an old and lazy children's riding pony.

The speaker then mentioned the special problems in cattle due to their peculiar anatomy and physiology. He made special reference to the work in the field of epidural anaesthesia done by Dr. Geoffrey Brook, whom UFAW was privileged to have present at this meeting.

Speaking of the smaller animals, Professor Wright said that the barbiturate anaesthetics were sufficient for most operations since the competent surgeon was able to perform them in the time available by their use. He considered that intra-tracheal intubation was probably a fashion and might be more elaborate than was usually necessary, other than in those special breeds which are grossly brachicephalic in type.

In conclusion, Professor Wright said, "Surgery will always play an important part in the veterinary surgeon's usefulness to the animal owner . . . this field is ever increasing and the secret of success lies in using anaesthesia efficiently, with safety and with complete recovery afterwards."

A lively discussion then followed and Professor Wright answered many questions.

Replying to Dr. Brook he considered that the use of curare-like paralytics was not only unnecessary but that, in the absence of reliable signs of sensation, their use could be objectionable.

Asked about the castration of lambs, Professor Wright commented that this operation is usually so quickly performed that except for mature animals it was probably more humane without the use of a local anaesthetic. He went on to say that much ill-informed opinion was circulated as to the actual pain inflicted and reminded the audience that the manipulation of a broken limb, although excluded from the provisions of any Act, was far more painful than many operations involving the cutting of the skin.

Professor L. P. Pugh, of Cambridge University, mentioned the ease with which loss of consciousness could be induced in parturient animals and the relative simplicity of the anaesthetic requirements for caesarean section.

Replying to a question on overstocking, Professor Wright spoke of the lack of real scientific evidence of the actual pain evoked. It was the duty, he said, of a scientific society like UFAW to approach the matter objectively since there was much confusion regarding it, and base their conclusions on the outcome of the observations of its members.

In proposing a vote of thanks, Mr. T. C. Bate expressed the gratitude of all members present to Professor Wright for making the journey to Barford to deliver his most able and interesting address.

Various other matters concerning the Section were then discussed and officers for 1953-4 were elected as follows: *President*: Professor J. G. Wright, D.SC., M.V.SC., F.R.C.V.S.; *President-Elect*: Dr. W. R. Wooldridge, M.SC., M.R.C.V.S.; *Hon. Secretary*: Mr. C. Schwartz, M.R.C.V.S.; *Student Chairman*: Mr. A. V. Clark-Lewis (Royal Veterinary College); *General Secretary*: Miss M. P. Williams, B.SC. (ECON.).

The meeting closed with a vote of thanks to Mr. Murphy for his valuable services to the Section during his term of office.

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THE LIVESTOCK EXPORT GROUP

The Livestock Export Group, in the course of its report for the quarter ended September 30th, 1953, states that the speed with which backlogs of stock are being cleared and the return to more normal trading is clearly reflected in the figures for stock exported through quarantine in the last quarter, when a total of 402 head was shipped, comprising 352 cattle, 33 sheep, 14 pigs and three goats—332 head being sent to Canada and 70 head to Eire. It should be noted that during the similar period last year no stock were exported through quarantine.

The figure of 402 head exported establishes a record for the number of animals shipped through quarantine in any one quarter, the previous highest being 368 during the December quarter of 1951. This has, undoubtedly, been achieved by the enlargement of the Glasgow Quarantine Station, the full beneficial effects of which will be come more evident as time goes by.

Australian Import Regulations.—The Australian authorities have advised that the statutory declaration required to be made by exporters under their importation regulations shall include a statement to the effect that animals are free from vibriosis, that animals are from a herd in which vibriosis does not exist, and

that they have not been in contact with any animal affected with vibriosis during the period of six months next preceding date of shipment. Any animal landed in Australia which is found to be affected with vibriosis may be destroyed without compensation.

While maintaining their general embargo on stock from the Channel Islands, the Australian authorities have granted special permission for the importation of cattle from there. The conditions under which animals may be imported are that should an outbreak of foot-and-mouth disease occur in the Channel Islands whilst animals are in quarantine, the shipment of all animals in quarantine (regardless of their origin) will be deferred for a minimum period of 30 days. Also, should an outbreak occur in the islands, no importations will be allowed from there until further notice.

Canada and U.S.A.—A deputation from the Group was received in August by a representative of the veterinary branch of the Canadian Department of Agriculture when the procedure of calling animals forward for shipment was discussed in connection with the grant of import permits for stock by Canada.

The Group explained that it had drawn up rules covering this point which ensure fairness both to the breeder here and the importer regarding the order of the dispatch of stock and which had been approved by its breed society and other members. It was also pointed out that under the system evolved by the Group, after animals had entered quarantine exporters were immediately advised as to exactly which animals could be expected to be shipped on the next occasion, thus giving breeders an early opportunity to get animals ready and to pay particular attention, for instance, to taking preventive measures against mange, etc., which ensured that animals were sent forward in a healthy condition.

Exporters with stock still in England are hesitating to send them to Scotland to comply with the 60-day requirement as they feel they cannot be sure of a permit being granted when required and, further, they are unable to reply satistactorily to prospective clients, particularly those in the U.S.A., as to when they might expect delivery, whereas under normal conditions this information is readily available from the Group.

Representations have been made to the Ministry of Agriculture on the matter and it is hoped that the procedure adopted formerly in accordance with the Group's rules, which is applied to stock for all countries requiring quarantine before shipment, will be fully restored in the near future.

Dispatch of Animals to Quarantine—Pedigree Certificates.—The Ministry of Agriculture has advised the Group that, arising from inaccuracy in quoting identity marks and illegibility of such marks, exporters are warned that movement orders issued for stock at the time of examination by veterinary officers are issued only on the clear understanding that if the officer in charge of the quarantine station does not receive, *before shipment*, either the correct pedigree certificates themselves or a signed declaration to the effect that the certificates have been forwarded to the overseas purchaser, the animals concerned are liable to be returned at the owner's expense.

It has been found necessary by the Ministry to issue this instruction as overseas authorities require to be furnished with pedigree certificates by the purchaser.

In the case of animals which may be substituted, exporters should advise their overseas clients of substitutions and draw the attention of the Ministry's veterinary officer to any such cases at the time stock is inspected by him before dispatch to quarantine.

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ANCESTOR OF THE HORSE

Skulls of *Eohippus* Found in Colorado

In an announcement of great interest to veterinarians and to naturalists the world over, the American Museum of Natural History states that in a fossil bed in Colorado discovered by one of its staff in 1952 it has potentially the "richest single find known of mammals of the eocene period, dating back 50,000,000 to 60,000,000 years."

It includes eight "practically perfect" skulls of *Eohippus*, the earliest known ancestor of the horse of to-day.

Only a few imperfect skulls of *Eohippus* are known. According to Dr. G. G. Simpson, Chairman of the museum's department of geology and paleontology, until this group of skulls were unearthed paleontologists were uncertain whether variations noted in earlier discoveries were differences within an individual species or distinguishing characteristics of several species, but now science has been given a basis on which to make judgments about the range of variations.

Eohippus was an animal which ranged in size from 10 inches at the shoulders to half the height of a Shetland pony, and had four toes on its forefeet and three on its hind feet. In the process of evolution it lost most of its toes, but remains of two toes are to be seen in the splint bones of a modern horse.

Dr. Simpson said that in this deposit, 90 miles south of Colorado Springs—named Castillo Pocket—there were fossils of at least eight different kinds of early mammals. This made it of unusual interest in that it gave a picture of a whole fauna of animals that lived together early in the age of mammals.

The fossil remains are at several levels in a hill. Because they are clustered so thickly there was danger of damaging them, and a block of sandstone in which they were embedded was dug out and, covered with plaster to protect it, was taken to New York to the museum. It weighed nearly 2 tons. This block, which is only a small part of the 100-foot wide pocket, has just been opened, but the work of uncovering fossils may take several years.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

GLANDULAR IMPLANTS FOR SKIN DISORDERS IN CATS

Sir,—With reference to Mr. N. Comben's article, of 10 cases of miliary eczema in cats treated during the last two years by the subcutaneous implantation of testosterone propionate, two have shown no response, two have shown partial response, and six have shown complete cure. The six completely cured had first been treated by the administration of orchitic gland orally and the symptoms had subsided but recurred when the treatment was withdrawn.

I should like to thank my partner, Mr. Harry S. Gates, M.R.C.V.S., for permission to quote some of his cases.—Yours faithfully, G. W. Serth, 102, Brighton Road, Purley, Surrey. *December 13th*, 1953.

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Sir,—I have been very interested in the reports of the use of the implantation of the sex hormones in cats suffering from gross dermatitis. This method is sometimes very effective, but I have found some of my clients object to this small operation (usually the uneducated type of person who objects to "operations on animals"). However, I have been using in males tablets of orchitic extract and I find these very effective in improving the state of the skin and coat, and also the behaviour of the cat is not so objectionable as with the implantation of testosterone. These tablets must be administered more or less all the time, but one can find a minimal maintenance dose, and the cat does not object to these tablets, which can be given in food. I also use ovarian extract in sterilised females, and again in some respects I find this preferable to stilboestrol.

There are some cases which do not respond to this and little can be done, but when it becomes possible to obtain cheap and plentiful supplies of ACTH or cortisone I think we shall be able to help these cases. I have used the latter hormone in two cases of hopeless eczema, and in both there was a dramatic but temporary improvement. An implant (if ever available) will possibly be the answer.—Yours faithfully, Cecil A. Cohen, 1, Roby Road, Huyton. *December 13th*, 1953.

. . . . . .

Sir,—To-day I completed the 30th implant operation on a neuter male cat using a 25 mg. testosterone pellet. The introduction site has in all cases been the area over the shoulders. The area is ideal as the patient is in a comfortable position, only one assistant is required to exercise what little control is needed and the site is the most suitable for bandaging.

Local anaesthesia was obtained with 1½ c.c. Parsetic, approximately a 1 square inch area of skin shaved and an incision of ¼ inch made (the width of a small scalpel blade), a blunt trocar introduced to separate the subcutaneous tissues to a depth of 2 inches towards the head. The trocar is withdrawn and re-introduced with a 2·2 mm. cannula (the trocar assists the entrance of the cannula into the small opening of the wound); again the trocar is withdrawn, this time from the cannula, the pellet is placed in the cannula with sterile forceps which is extended to its depth. The pellet is gently placed *in situ* without damage by

the trocar. Gentle pressure with the thumb and forefinger of the left hand retains the pellet whilst the trocar and cannula are withdrawn. The incision is then closed with two close stitches of No. 2 boilable silk. The operation is absolutely bloodless and occupies now, no more than 10 minutes. A 3-inch square gauze pad, a 2-inch bandage in figure-of-eight bandaging over the shoulders, finally secured with two mattress stitches completes the operation. The stitches and bandage in all cases remained undisturbed until removed eight days after the operation. The blunt trocar is more suitable for the operation than the pointed one.

Results are most encouraging, although I feel only single implants of 25 mg. strength should be used as in one case blindness and deafness persisted for a period of seven days. In two cases where improvement was not all one desired (although they had not been free from the eczema for two years) a further implant was made after an interval of 40 days; improvement then became more marked.

During the past few years this form of skin trouble has become a similar feature in the spayed female; several cases have been brought for attention.—Yours faithfully, L. Horne, 98, West Bar, Sheffield, 3. *December 15th*, 1953.

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GUT OEDEMA IN PIGS

Sir,—I feel positive that this disease is not caused by the feeding and that it is either a bacterial or a virus disease. I have a client whose pigs are kept under ideal conditions in orchards where each sow and litter have a portion of ¼-acre to themselves with a large hut to sleep in if they desire. The food is nuts with running water in each allotment. The losses last year from gut oedema were such that the pigs lost money. Usually about 20 to 30 breeding sows are kept and two boars. Two out of every three litters had that disease and in two cases all the litter was lost. Only a few weeks ago I was asked to attend a pig and it was dead when I arrived: an illness of only three hours or so. I have seen the disease in pigs which were still on the sows, but usually it is found in pigs a few weeks after weaning.

In my experience the best treatment—though even so it is not very satisfactory—is *B. coli* serum and vaccine. The losses from this disease must be colossal and it is time something was done for it; also it is time that we had a means of diagnosing swine fever without having to make a *post-mortem* examination.

The pig population is increasing fast, but we are behind in our treatments. Penicillin has been the greatest blessing we have had for those animals, and the crystal violet vaccine is also worthy of comment.

There is plenty of material to be obtained but we are short of research workers who are interested in pigs.—Yours faithfully, G. C. Lancaster, Eastwick House, Evesham, Worc. *December 14th*, 1953.

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"A FARROWING PHENOMENON"

Sir,—In connection with the letter which appeared in your issue of December 12th, I can record a somewhat similar occurrence. The subject was a large white sow which had raised three previous litters. To one service she produced one normal piglet at full term, which survived, and eight normal piglets 21 days later.—Yours faithfully, R. H. Smythe, Nottingham. *December 13th*, 1953.

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THE MEASUREMENT OF HEAT LOSS THROUGH FLOORS

Sir,—I have read with much interest the article by Messrs. J. S. S. Inglis and A. Robertson, *Vet. Rec.*, Vol. 65, No. 49, pp. 875-6.

Their Discussion and Summary appear to me to be at complete variance with ordinary common sense and so I wonder whether all the factors involved have been thought out and considered.

From observations made over a period of years on floors in animal houses I have found that concrete floors without insulation are invariably cold and usually wet, and that floors made over insulated air spaces of adequate size are invariably warm and dry.

That straw bedding for young pigs is of advantage cannot be doubted.

The question arises, therefore, is it better for the pig to lie on a warm dry floor or on a cold and wet one? I know which I should prefer.—Yours faithfully, H. M. Salusbury, The Gables, Greenfield Road, Ruthin. *December 16th*, 1953.

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A PROBLEM FOR THE FUTURE

Sir,—It is commonly said that the general practitioner—numerically the largest section of the profession—has little time to consider problems of larger importance to our governance. This view seems to me to be wide of the mark, for the general practitioner spends much of his time driving, subconsciously or reflexly, over roads which he knows thoroughly. Such long periods have at any rate provided me with time for much thought on the general professional situation which seems to me to be much like that of a group making their way hopefully along a high ridge with mists below them on either side. But there are gaps in the mist through which the dangers of the situation may be seen by anyone who happens to be looking.

Some two years ago you were good enough to allow me to draw the attention of the profession to the deteriorating financial position of the farming community; I then received much support, both public and private, for my views; the most curious argument adduced against my contentions was that, because many farmers were shortsighted enough to continue an extravagant way of life, it was quite in order for us to be equally shortsighted! Since this time there has been a further marked deterioration in the agricultural outlook, and there is a widespread feeling of uncertainty, amounting almost to alarm, about the future among farmers. Bound up with this situation is the degree of our dependence on the income derived from part-time appointments. How many smaller practices could carry on without this substantial subvention? Whatever the desires of the Ministry in the matter, it is foolish not to recognise that a whole-time officer does more work for less money than a Local Veterinary Inspector, and impossible to escape the logical conclusion—that sooner or later a far closer integration of the various sections of the profession is inevitable, and may even be desirable in the national interest.

But to my mind a far more pressing danger, because more insidious, is the increasingly close relationship between the profession and the Animal Health Trust. This body, starting out with the worthy aim and object of providing funds to assist the education of veterinary students, has grown out of all recognition. It continues to rely for the major part of its income on voluntary subscriptions. These are found by all such bodies to be increasingly difficult to maintain, and it is idle to suppose that, whatever the political complexion of the country, personal incomes are going to allow of increased subscriptions to charitable objects. The Chief Veterinary Officer of the Ministry of Agriculture is, I note, a member of Council, Animal Health Trust: the profession itself is represented on that body by the President of the British Veterinary Association. The Animal Health Trust will not always, in the course of nature, be sustained by the skill and experience of Dr. Wooldridge; the time will come when it must, in spite of the popular appeal of performing animals and similar expedients, curtail its commitments, probably drastically. When that time comes a close liaison with the profession, such as at present obtains at high level, will in my view militate against the public esteem of the profession—an esteem which is vital if we are to continue to be of service to the community.—Yours faithfully, Paul Crosfield, Chipping Norton, Oxon. *December 7th*, 1953.

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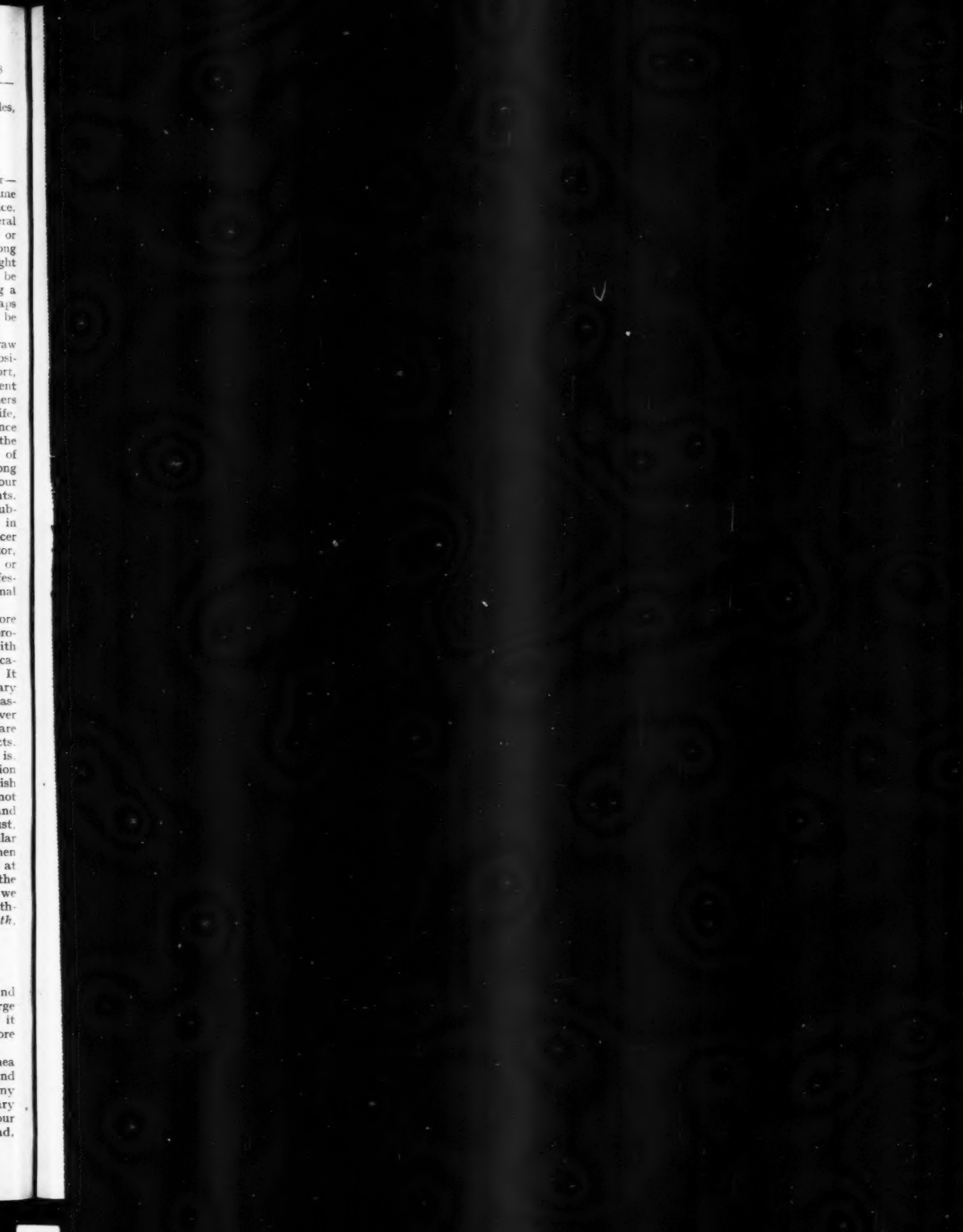
R.C.V.S. ANNUAL FEES

Sir,—I have read with interest the letters of Mr. Fox and Mr. Bevan on the above subject. Four guineas is quite a large sum, but I understand that when the fee was originally fixed it was one guinea. To-day the four guineas is worth little more than a guinea of, say, 30 years ago.

Regarding the veterinary practitioners paying only one guinea per annum, this amount was fixed by Act of Parliament and not by the veterinary practitioners. For myself and some of my colleagues I would say, "Give us the same rights as veterinary surgeons in all matters, and then—and only then—reconsider our annual fee."—Yours faithfully, W. Shepherd, 168, Gipsy Road, Welling, Kent. *December 19th*, 1953.